

### **Abstract of the invention**

A system and method for printing a pattern, using third harmonic generation. The method includes: (i) determining an illumination scheme in response to the pattern; and (ii) directing, in response to the determination, at least one beam of radiation having a fundamental frequency, via a medium, towards an intermediate layer such as to excite at least one third harmonic beam that propagates through at least a portion of the intermediate layer towards a radiation sensitive layer; whereas the radiation sensitive layer is sensitive to third harmonic radiation and is substantially not sensitive to radiation of the fundamental frequency.